

That which is claimed is:

1. An irrigation system for fertilizing soil through a water flowline and a sprinkler head, comprising:
 - a reservoir for holding an additive;
 - a pump connected to an outlet of the reservoir, which injects the additive into the flowline;
 - at least one sensor that monitors a characteristic of the additive; and
 - a feedback control system that reads data from the sensor and controls the flow rate of the additive through the pump.
2. The system of claim 1, wherein the sensor is adapted to be positioned in the flowline.
3. The system of claim 2, wherein the sensor comprises a flow meter adapted to be positioned in the flowline.
4. The system of claim 2, wherein the sensor comprises a pH sensor adapted to be positioned in the flowline.
5. The system of claim 1, wherein the sensor comprises a fluid level sensor adapted to be positioned in the reservoir.
6. The system of claim 1, wherein the sensor comprises a soil sensor adapted to be embedded in a soil sample.
7. The system of claim 1, wherein the pump comprises a positive displacement pump.
8. A method for fertilizing soil, comprising:
 - (a) flowing water through a flowline;
 - (b) pumping an additive directly into the flowline, wherein the additive mixes with the water; and
 - (c) spraying the additive and water mixture through a sprinkler head.
9. The method of claim 8, further comprising sensing at least one characteristic of the additive, and transmitting feedback data to control the rate of additive into the flowline.
10. The method of claim 9, wherein the sensing comprises determining a flow rate of the additive and water mixture in the flowline.
11. The method of claim 9, wherein the sensing comprises determining a pH level of the additive and water mixture in the flowline.

12. The method of claim 9, wherein the sensing comprises determining a characteristic of the additive and water mixture, and varying the pumping flow rate in response to the characteristic.
13. The method of claim 9, wherein the sensing comprises determining the additive composition in a soil sample.
14. The method of claim 9, wherein the pumping comprises pumping the additive from a reservoir directly into the flowline, and wherein the sensing comprises determining a fluid level of the additive in the reservoir.
15. The method of claim 9, wherein the sensing comprises reading the feedback data in increments of 50 milliseconds or more.
16. The method of claim 8, wherein the pumping comprises pumping at a flow rate range of 0-150 gallons per hour.
17. The method of claim 8, wherein the pumping comprises rotating a progressive cavity pump rotor and pumping the additive into the flowline at a constant flow rate per revolution of the rotor.
18. A method for fertilizing soil, comprising:
 - (a) flowing water through an underground flowline;
 - (b) with a progressive cavity pump, pumping an additive directly into the flowline, creating a mixture of the additive and the water in the flowline;
 - (c) spraying the mixture through a sprinkler head;
 - (d) sensing at least one characteristic of the additive; and
 - (e) transmitting the characteristic through a feedback loop to control the pumping rate of the additive into the flowline.
19. The method of claim 18, wherein the sensing comprises determining a flow rate of the additive and water mixture in the flowline.
20. The method of claim 18, wherein the sensing comprises determining a pH level of the additive and water mixture in the flowline.